**Lesson plan of Zoology Department (2022-23) Odd semester**

**Subject- LIFE AND DIVERSITY FROM PROTOZOA TO HELMINTHES**

**Class-**B.Sc medical Sem-1

**Faculty Name-** Aakanksha Yadav, Shalini Yadav and Sushila

| **Time Period** | **Topics covered** |
| --- | --- |
| **August Week 4** | Phylum- Protozoa  i) General characters and classification up to order level |
| **September** | ii) Biodiversity and economic importance |
|  | iii) Type study of Plasmodium; |
|  | iv) Parasitic protozoans: Life history, mode of infection and pathogenicity of Entamoeba, |
|  | Trypanosoma, Leishmania and Giardia., TEST |
| **October** | Phylum- Porifera:  i) General characters and classification up to order level |
|  | ii) Biodiversity and economic importance iii) Type study - Sycon. |
|  | iv) Canal system in sponges,. v) Spicules in sponges , |
|  | TEST |
| **November** | Phylum - Coelentrata:  i) General characters and classification up to order level |
|  | ii) Biodiversity, economic importance |
|  | iv) Corals and coral reefs, v) Polymorphism in Siphonophores |
|  | TEST |
| **December** | Phylum - Helminths:  i) General characters and classification up to order level |
|  | ii) Biodiversity, economic importance |
|  | iv) Helminths parasites: Brief account of life history, mode of infection and pathogenesity of  Schistosoma, Ancylostoma, Trichinella, Wuchereria and Oxyuris. |
|  | TEST |

**Lesson Plan-**2022-23

**Subject- Cell Biology**

**Class-**B.Sc medical Sem-1

**Faculty Name-** Aakanksha Yadav, Shalini Yadav and Sushila

| **Time Period** | **Topics covered** |
| --- | --- |
| **August Week 4** | Plasma Membrane: Fluid mosaic model |
| **September** | various modes of transport across the membrane,  mechanism of active and passive transport |
|  | endocytosis and exocytosis. |
|  | Endoplasmic reticulum |
|  | role of ER in protein synthesis and transportation  in animal cell.  Test |
| **October** | Golgi complex: Structure, Associated enzymes and role of golgi-complex in animal cell. |
|  | Ribosomes: Types, biogenesis and role in protein |
|  | Lysosomes: Structure, enzyme and their role; polymorphism |
|  | Mitochondria: Mitochondrial DNA; as semiautonomous body, biogenesis  Test |
| **November** | mitochondrial enzymes ( only names), role of mitochondria.  Cytoskeleton: microtubules |
|  | microfilaments, centriole and basal body |
|  | Cilia and Flagella |
|  | Ultrastructure and functions of Nucleus: Nuclear· membrane, nuclear lamina  test |
| **December** | nucleolus, fine structure of chromosomes, nucleosome concept and role of histones |
|  | Euchromatin and heterochromatin, lampbrush chromosomes and polytene chromosomes. |
|  | Mitosis and Meiosis (Cell reproduction) |
|  | Brief account of causes of cancer.  An elementary idea of cellular basis of Immunity  Test. |

**Lesson plan B.Sc. Medical 2022- 23**

**Odd semester (3th semester)**

**Life and Diversity of Chordates –I**

**Teacher’s name: Sapna Yadav, Sanju Mohan, Rakhee Chauhan**

| **Aug**  Introduction and classification of carbohydrates and lipids |
| --- |
| **September**  Principle of classification, origin and evolutionary tree  Role of amnion in evolution, salient features of chordates  Functional morphology of the types with examples  Economic importance and conservation measures  Class test |
| **October**  General characters and classification of phyla up to orders  Systematic position, distribution, ecology, morphology and affinities  Urochordata: Herdmania  Amphioxus – type study  Class test |
| **November**  General characters of cyclostomes  Type study of peteromyzon  Class test |
| **December**  General characters of pisces  Parental care in fishes  Fish migration  Type study of labeo  Class test  Revision |

**Odd semester (3th semester)**

**Mammalian physiology- I**

**Teacher’s name: Sapna Yadav, Sanju Mohan, Rakhee Chauhan**

| **Aug**  Introduction and classification of carbohydrates and lipids |
| --- |
| **September**  Function of carbohydrates and lipids  General properties of carbohydrates and lipids  Introduction, Classification of proteins  Nomenclature and classification of enzymes action  Class test |
| **October**  Transport through bio membranes  Buffers and general properties of protein  Nutritional components- carbohydrates, fats, lipids, vitamins and minerals.  Types of nutrition and feeding, digestion of lipids  Class test |
| **November**  Digestion of proteins and carbohydrates  Symbiotic digestion and nucleic acid digestion  Absorption and assimilation, control of enzyme action  Types of muscles, ultra-structure of skeletal muscles, biochemical and physical events during muscle contraction  Class test |
| **December**  Single muscle twitch, tetanus, muscle fatigue, tone, oxygen debt, cori cycle, single unit smooth muscles and properties  Structure and types of bones, effects of ageing  Bone disorder  Revision |

**Subject: Fish and Fisheries (P 5.1)**

**Class: BSc Medical (5th) Sem**

**Faculty name: Shweta Yadav, Bharti Khurana, Sangeeta.**

| **Time Period** | **Topic Covered** |
| --- | --- |
| **August** | **Introduction to Fisheries and aquaculture** |
| **September** | **utilization and demand.** |
|  | **Fresh Water fishes of India: River system** |
|  | **Reservoir, pond, tank fisheries;** |
|  | **captive and culture fisheries, cold water fisheries.**    **Tests** |
| **October** | **Fishing crafts** |
|  | **Gears, Fin fishes** |

|  | **Crustaceans and their culture**    **Tests** |
| --- | --- |
| **November** | **Molluscs and their culture** |
|  | **Seed production: Natural seed resources and its assessment** |
|  | **Natural seed resources – collection, Hatchery production** |
|  | **Nutrition: Sources of food (Natural, Artificial)**    **Tests** |
| **December** | **feed composition (Calorie and Chemical ingredients).** |
|  | **recycled water, cage, culture; poly culture, Culture technology: Biotechnology** |
|  | **gene manipulation, cryopreservation of gametes.** |

| **Dec.** | **Test and revision** |
| --- | --- |
|  |  |

**Lesson plan of zoology department**

**Lesson plan -22-23**

**Subject -Ecology and evolution**

**Class- Bsc medical sem 5th**

**Faculty name- Sangeeta, Bharti Khurana, Shweta yadav**

| **Time Period** | **Topics covered** |
| --- | --- |
| **August Week 4** | **Basic concepts: Definition, significance of ecology.** |
| **September** | Concept of Habitat & ecological niche. |
|  | Environmental factors: Abiotic -Light, Temprature. |
|  | Humidity, Topography, edaphic factors. |
|  | Biotic factors. |
| **October** | Test and doubt class |
|  | Ecosystem concept, components , property & function. |
|  | Ecological energy and energy flow, food chain food web. |
|  |  |
| **November** | Test and doubt class. |
|  | Biogeochemical cycles |
|  | Trophic structure ecological pyramids & productivity |
|  | Population ,origin of life ,Test and doubt |
| **December** | Concept of evidence of organic evolution , Theory of organic evolution. |
|  | Concept of micro,macro and mega evolution. |
|  | phylogeny of horse and evolution of man |
|  | Test and revision |

**Lesson plan zoology (hons.) 2022- 2**

**Odd semester (1st semester)**

**Introduction to Biology (P- 101)**

**Teacher’s name: Sapna Yadav**

| **Time period** | **Topics covered** |
| --- | --- |
| **September**  Introduction to concepts of biology: Themes in the study of biology; A closer look at ecosystem; A closer look at cell; The process of Science; Biology and everyday life  Evolutionary history of biological diversity, Early earth and the origin of life  Major events in the history of life; Mechanism of Macroevolution; Phylogeny and the tree of life  Classifying the diversity of life, Kingdoms of Life –Prokaryotes, Eukaryotes, Archaea  Class test | |
| **October**  Darwinian view of life and origin of species Darwin’s theory of evolution; The evolution of populations; Concepts of species; Mechanism of speciation  Genetic approach to Biology, Patterns of inheritance and question of biology; Variation on Mendel’s Law; The molecular basis of genetic information; The flow of genetic information from DNA to RNA to protein;  Genetic Variation; Methodologies used to study genes and gene activities; Developmental noise  Detecting macromolecules of genetics; Model organisms for the genetic analysis; Distinction between Phenotype and Genotype  Class test | |
| **November**  Chemistry of life, The constituents of matter; Structure of an atom; The energy level of electron  The formation and function of molecules depend on chemical bonding between atoms  Chemical reaction make or break chemical bonds Water and life, The water molecule is polar  Properties of water; Ionization of water  Class test | |
| **December**  Carbon and life, Organic chemistry-the study of carbon compounds; What makes carbon special? Properties of organic compounds  Structure and function of biomolecules - Most macromolecules are Polymers; Carbohydrates act as fuel and building materials  Lipids are group of hydrophobic molecules; Protein have diverse structures and functions  Nucleic acids store and transmit hereditary information  Class test  Revision | |

**Lesson plan 2022-23**

**Bsc Zoology hons. 1st year (1st sem)**

**Subject- Biodiversity I NonChordata (102)**

**Teacher’s name- Ambika Jindal**

**Time Period Topics covered**

**August • General characters and outline classification of different phyla Protozoa General characters and outline classification Locomotion and reproduction in Protozoa. Type study of Paramecium**

**• Test**

**September • Type study of Paramecium, Plasmodium Structure and life history, Origin of metazoa, metamerism and coelom. Phylum Porifera General characters and outline classification,Canal System and spicules in sponges**

**• Test**

**October • Type study of Sycon: Structure and life history, General characters and outline classification Polymorphism in Cnidarians; corals and coral reefs**

**• Test**

**November**

**• Type study of Aurelia: Structure and life history, General characters and outline classification of platyhelminthes, Type study of Taenia, Fasciola**

**• Test**

**December • General characters and outline classification of Aschelminthes, Type study of Ascaris: Structure and life history; parasitic adaptations.**

**• Test**

**Lesson plan 2022-23**

**Bsc Zoology hons. 1st year (1st sem)**

**Subject- Biodiversity II NonChordata (103)**

**Teacher’s name- Ambika Jindal**

**Time Period Topics covered**

**August • Phylum Annelida: General characters and outline classification Adaptive radiations in Polychaeta. Type study of Leech: Structure and life history.**

**• Test**

**September • Type study of Leech, Phylum Arthropoda: General characters and outline classification. Larval forms of crustacea; social life, moulting and metamorphosis in Insecta; vision in Arthropoda, Affinities of Onychophora.**

**• Test**

**October • Type study of Scorpion: Structure and life history, Phylum Mollusca:**

**General characters and outline classification Torsion and detorsion; modifications of shell and foot**

**• Test**

**November**

**• Type study of Pila:Structure and life history, Phylum Echinodermata: General characters and outline classification Water-vascular system and larval forms**

**• Test**

**December • Type study of Asterias: Structure and life history.**

**• Test**

**Lesson plan of Zoology Department (2022-23) Odd Sem**

**Lesson Plan-**2021-22

**Subject- cell biology ( 301)**

**Class-**B.Sc zoo hons Sem-03

**Faculty Name-Dr. Suman and Ms. Sushila**

| **Time Period** | **Topics covered** |
| --- | --- |
| **August Week 4** | **An Overview of cells-** Overview of prokaryotic and eukaryotic cells. |
| **September week-1** | Cell size and shape, Phages, Viroids, Mycoplasma (PPLO) and E. coli. |
| **September week-2** | **Tools and techniques-** Principles of light microscopy; Phase contrast microscopy. |
| **September week-3** | **Electron microscopy (EM)-** Scanning EM (SEM) and scanning transmission EM (STEM); Fluorescence microscopy. |
| **September week-4** | **Analytical tools and techniques -** Flow cytometry- Fluorochromes, fluorescent probe and working principle; |
| **October week-1** | Spectrophotometry; mass spectrometry; X- ray diffraction analysis |
| **October week-2** | **Separation tools and techniques -** Subcellular fractionation- differential and density gradient centrifugation |
| **October week-3** | **Chromatography-** paper, thin layer, gel filtration, ion exchange, affinity and high performance liquid chromatography (HPLC) |
| **October week-4** | **Composition of cells-** Molecules of cell; cell membrane and cell proteins |
| **November week-1** | **The Nucleus- nuclear envelope-** structure of nuclear pore complex, nuclear lamina, Transport across nuclear envelope. |
| **November week-2** | Nuclear chromatin: molecular organization, Nucleolus and rRNA processing. |
| **November week-3** | **Protein sorting and transport-** Endoplasmic reticulum, The Golgi apparatus, mechanism of vesicular transport, Lysosomes. |
| **November week-4** | **Mitochondria-** structural organization, function, marker enzymes, mitochondrial biogenesis, |
| **December week-1** | Protein import in mitochondria, Semi autonomous nature of mitochondria, mitochondrial DNA. |
| **December week-2** | **Chloroplast-** structural organization, light dark reaction, semi autonomous nature of chloroplast, chloroplast DNA |
| **December week-3** | **Cytoskeleton-** Microtubules; microfilaments; intermediate filament |
| **December week-4** | **Cell movement-** structure and organization of actin filament, actin, myosin filament and cell movement. |

**Lesson Plan-**2022-23

**Subject- ANIMAL PHYSIOLOGY & HISTOLOGY -II**

**Class-**B.Sc (H) zoology Sem-3

**Faculty Name-**  Shalini Yadav

| **Time Period** | **Topics covered** |
| --- | --- |
| **August Week 4** | Excretory System  Histology of kidney, |
| **September** | ureter and bladder; Renal blood supply; Mechanism and regulation of urine formation;  Regulation of acid-base balance.. |
|  | Test |
|  |  |
|  |  |
| **October** | Nervous System  General organization: Neuron resting membrane potential and its basis; Origin of action potential and its propagation  in myelinated and unmyelinated nerve fibers; Synaptic transmission and types of synapsis, Neuro-muscular junction;  Reflex activity-reflex arc; Types of reflexes, Physiology of hearing and vision. |
|  | Test |
|  |  |
|  |  |
| **November** | Reproductive System  Histology of male and female reproductive systems, Puberty, physiology of male and female reproduction; Methods  of contraception (depicted through flow chart). |
|  | Test |
|  |  |
|  |  |
| **December** | Endocrine System  Structure, histology and functions of endocrine glands; Hypothalamus- principal nuclei involved in control of  endocrine system, control of anterior pituitary hormones by hypothalamic releasing hormones (neuroendocrine  mechanisms); Effects of abnormal secretions of hormones; Placental hormones. |
|  | test |
|  |  |
|  |  |

**Lesson plan of Zoology Department (2022-23) odd sem**

**Lesson Plan-**2022-23

**Subject-**Molecular Biology-I (302)

**Class-**B.Sc Zoology (Hons) Sem-III

**Faculty Name-** Dr. Suman and Ms. Bharti Khurana

| **Time Period** | **Topics covered** |
| --- | --- |
| **August Week 4** | **Nucleic acid convey genetic information-** DNA as the carrier of genetic information |
| **September week-1** | Key Experiments establishing the central dogma, DNA double helix and double stranded model. |
| **September week-2** | Genetic code, Direction of protein synthesis (Translation), Genomics. |
| **September week-3** | **The Structure of DNA/RNA (genetic material)-** DNA Structure: Miescher to watson crick- historic prospective. |
| **September week-4** | DNA structure, Salient features of double helix, Types of DNA. |
| **October week-1** | Types of genetic material, denaturation and renaturation, cot curves, |
| **October week-2** | DNA topology- linking number, topoisomerases. |
| **October week-3** | Organization of DNA - Prokaryotes, Viruses, Eukaryotes, RNA structure |
| **October week-4** | **Organelle DNA-** Mitochondria and Chloroplast DNA |
| **November week-1** | **Genome Structure-** Genome sequence, chromosome diversity, chromosome Duplication and Segregation |
| **November week-2** | **Chromatin Structure-** Euchromatin, Heterochromatin- Consecutive and facultative heterochromatin |
| **November week-3** | **Nucleosome-** Regulation of chromatin structure and nucleosome assembly; organization of chromosomes. |
| **November week-4** | **The Replication of DNA in Prokaryotes and Eukaryotes-** Chemistry of DNA Synthesis, Genetic principles- Bidirectional, Semiconservative and semi discontinuous replication. |
| **December week-1** | RNA priming, Various models of DNA, Replication including rolling circle, D-loop, (mitochondrial). |
| **December week-2** | Theta mode of replication, Replication of linear dsDNA, Replication of 5’end of linear chromosome. |
| **December week-3** | **Enzymes involved in DNA replication-** DNA Polymerases, Ligase, Polymerase, Telomerase and other accessory proteins. |
| **December week-4** | **The Mutability and Repair of DNA-** Replication Errors, DNA Damage and their repair |

**Lesson Plan-**2022-23

**Subject- Biostatistics**

**Class-**B.Sc (H) zoology Sem-5

**Faculty Name-** Aakanksha Yadav

| **Time Period** | **Topics covered** |
| --- | --- |
| **August Week 4** | Measures of central tendency |
| **September** | Measures of dispersion; skewness, kurtosis. |
|  | Elementary Probability and basic laws. |
|  | Test |
|  |  |
| **October** | Discrete and Continuous Random variable, Mathematical Expectation, |
|  | Mean and Variance of Binomial, Poisson and  Normal distribution. |
|  | test |
|  |  |
| **November** | Sample mean and Sampling variance. |
|  | Hypothesis testing using standard normal variate. |
|  | test |
|  |  |
| **December** | Curve Fitting. Correlation and Regression. Emphasis on examples  from Biological Sciences. |
|  | test |
|  |  |
|  |  |

**Lesson Plan-**2022-23

**Lesson plan of Zoology Department**

**(2022-23) Odd Semester**

**Subject- Genetics and Genomics - I ( 501)**

**Class- B.Sc. Zoology (Hons.) 5th Semester**

**Faculty name: Anjali Yadav**

| **Time Period** | **Topic covered** |
| --- | --- |
| **August, Week 4** | **Introduction to Genetics- Mendel’s work on transmission of traits, Genetic Variation, Molecular basis of genetic information** |
| **September** | **Mitosis and meiosis- interrelation between cell structure and genetics function**  **Mitosis, Meiosis (explaining mendel’s ratios)**  **Mendelian Genetics and its Extension**  **Principles of Inheritance, Chromosome theory of inheritance, Laws of Probability**  **Pedigree analysis, Incomplete and codominance, Multiple alleles, Lethal alleles, Epistasis, Class test**  **Pleiotropy, Environmental effects on phenotypic expression, sex linked inheritance.** |
| **October** | **Linkage, Crossing Over and Chromosomal Mapping**  **Linkage and crossing over, Cytological basis of crossing over, Molecular mechanism of crossing over**  **Recombination frequency as a measure of linkage intensity, two factor and three factor crosses**  **Interference and coincidence, Somatic cell genetics – an alternative approach to gene mapping**  **Introduction to concept of Epigenetics, doubt class, Class test** |
| **November** | **Chromosomal Mutations: Deletion, Duplication, Inversion, Translocation, Aneuploidy and Polyploidy**  **Gene mutations: Induced versus Spontaneous mutations, Back versus Suppressor mutations**  **Molecular basis of Mutations in relation to UV light and chemical mutagens, Class test**  **Detection of mutations: CLB method, Attached X method, DNA repair mechanisms.**  **Sex Determination- Chromosomal mechanisms, Environmental factors determining sex determination, Barr bodies, Dosage compensation** |
| **December** | **Extrachromosomal Inheritance**  **Chloroplast mutation/Variegation in Four o’ clock plant and Chlymodomonas**  **Mitochondrial mutations in Neurospora and yeast, Maternal effects**  **Infective heredity- Kappa particles in Paramecium, class test**  **Quantitative Genetics-Quantitative and multifactor inheritance, Transgressive variations, Heterosis.**  **Revision & test** |

**Lesson plan of Zoology Department**

**(2022-23) Odd Semester**

**Subject- Biochemistry and Metabolism ( 504)**

**Class- B.Sc. Zoology (Hons.) 5th Semester**

**Faculty name: Anjali Yadav**

| **Time Period** | **Topics covered** |
| --- | --- |
| **August, Week 4** | **Introduction to biochemistry**  **Introduction to amino acids and proteins** |
| **September** | **Amino acids and proteins-**  **Structure and general properties of amino acids.**  **Protein Metabolism-**  **Catabolism of amino acids: Transamination**  **Class test** |
| **October** | **Deamination**  **Urea cycle**  **Fate of glucogenic and ketogenic amino acids with examples of serine and leucine respectively.**  **Introduction to enzyme**  **Enzymes kinetics**  **Class test** |
| **November** | **Mechanism of enzyme action**  **Inhibition of enzymes**  **Allosteric enzymes.**  **Intermediary metabolism**  **Inter-relationship of carbohydrates, lipid and protein metabolism.**  **Class test** |
| **December** | **Oxidative phosphorylation in mitochondria**  **Respiratory chain**  **ATP synthase**  **Inhibitors**  **Uncouplers.**  **Revision**  **Class tests** |

**Lesson plan of Zoology Department (2022-2023)**

**Odd semester**

**Subject: Organic Evolution(P502)**

**Class: BSc (H)Zoology 5th semester**

**Faculty name: Sapna Tanwar**

| **August**  **Concept of evolution, Origin of life** |
| --- |
| **September**  **Evidences in favour of evolution, Theories of evolution viz. Lamarckism,**  **Weisman’s theory of continuity of germplasm, Neo- Lamarckism ,Class Test**  **Darwinism and Modern synthetic theory of evolution**  **Sources of variability amongst population, mutations, Isolation, Natural selection** |
| **October**  **Hardy -Weinberg principle, Class Test**  **Micro and macro evolution, Structural and functional adaptations**  **Class test, Mimicry and protective colouration** |
| **November**  **Mimicry and protective colouration, Class Test**  **Speciation and its type**  **Zoo-Geographical distribution of animal species (Realms), Class Test** |
| **December**  **Fossil-Formation, Kinds , Interpretation**  **Age and significance of fossil**  **Evolution of man, Class test**  **Revision** |

**Lesson plan of Zoology Department (2022-2023)**

**Odd semester**

**Subject: Biochemistry & Metabolism(P504)**

**Class: BSc (H)Zoology 5th semester**

**Faculty name: Sapna Tanwar**

| **August**  **Carbohydrates: structure and properties of important monosaccharide** |
| --- |
| **September**  **Carbohydrates: structure and properties of important Disaccharide**  **Carbohydrates: structure and properties of important polysaccharide, Class test**  **Carbohydrate metabolism: Glycolysis, fermentation,**  **Carbohydrate metabolism: Citric acid cycle, pentose phosphate pathway** |
| **October**  **Carbohydrate metabolism: gluconeogenesis, shuttle system (malate aspartate shuttle) Class test**  **Carbohydrate metabolism: Glycerol-3-phosphate shuttle, Cori cycle**  **Glycogen metabolism** |
| **November**  **Lipids: structure, properties and functional significance of fatty acid, Class test**  **Lipid: triglyceride and steroids**  **Lipid metabolism: biosynthesis of saturated fatty acid**  **Lipid metabolism: beta -oxidation of saturated fatty acid, Class test** |
| **December**  **Lipid metabolism: ketogenesis, Revision, Class test** |

**Lesson plan B.Sc. Zoology (Hons) 2022- 23**

**Odd semester (5th semester)**

**Immunology - 1**

**Teacher’s name: Naveeta Yadav**

| **August**  Historical perspective of I mmunology, Early theories of Immunology. |
| --- |
| **September**  Innate, Adaptive (cell mediated and humoral) - Passive: Artificial and Natural Immunity, Active: Artificial and Natural Immunity.  Class test |
| **October**  Haematopoesis and role of haematpoietic factors, Cells of the immune system, Organs of the Immune system: Primary and Secondary lymphoid organs, Lymphatic system.  Class Test |
| **November**  Antigenicity and immunogenicity, Immunogens, Adjuvants and Haptens, Factors influencing immunogenecity, B and T-cell epitopes.  Class Test |
| **December**  Structure and Functions, Basic structure, deducing antibody structure, classes and function, Antigenic determinants on immunoglobulins, Antigen-antibody interactions, Polyclonal sera, Monoclonal antibodies, Hybridoma technology.  Class Test  Revision |

**Lesson plan B.Sc. Botany (Hons) (Sub.) 2022- 23**

**Odd semester (3th semester)**

**Animal physiology & Functional Histology**

**Teacher’s name: Naveeta Yadav**

| **August**  Structure and types of mode of digestive system and its glands; Process of digestion, assimilation and various disorders. |
| --- |
| **September**  Structure and functions of respiratory system; Control and coordination of respiration.  General organization: Neuron resting membrane potential and its basis; Origin of action potential.  Class test |
| **October**  Nervous System - Action potential propagation in myelinated and unmyelinated nerve fibers; Synaptic transmission and types of synapses, Neuro-muscular junction; Physiology of hearing and vision.  Histology of different types of muscle; Ultra structure of skeletal muscle; Molecular and chemical basis of muscle contraction; Characteristics of muscle twitch; Motor unit.  Class Test |
| **November**  Histology of male and female reproductive systems, Puberty, physiology of male and female reproduction; Methods of contraception (depicted through flow chart); Disorders of reproductive system.  Class Test |
| **December**  Histology and functions of endocrine glands; Nature of hormones; Mode of action of hormones; Hypothalamus- principal nuclei involved in control of endocrine system, control of anterior pituitary hormones by hypothalamic releasing hormones (neuroendocrine mechanisms).  Class Test  Revision |

**Lesson plan B.Sc. Botany Hons 2022-23**

**Odd semester (1st semester)**

**PAPER 5 BOT- 105 Zoology 1**

**BIODIVERSITY-I: NON-CHORDATA**

**Teacher’s name: Sanju Mohan**

| **September:**  Protozoa General Characters and Reproduction in Protozoa.  Origin of metazoan  Porifera General characters and Structural organization of Sycon    **Class test**: Reproduction in Protozoa and Structural organization of Sycon |
| --- |
| **October:**  Cnidaria General Characters and Polymorphism in Cnidarians  Platyhelminthes General Characters and Fasciola: Structure and life history  Aschelminths General characters and Life history of Ascaris and its parasitic adaptations    **Class test:** Polymorphism in Cnidarians  Fasciola: Structure and life history  Life history of Ascaris |
| **November**  Annelida General Characters and Adaptive radiations in Polychaeta.  Arthropoda General Characters and Larval forms of crustacea; metamorphosis in Insecta    **Class test:** metamorphosis in Insecta  Life history of Ascaris |
| **December**  Mollusca General characters and Torsion and detorsion  Echinodermata General Characters and Water-vascular system and larval forms  Revision    **Class test:** torsion and detorsion  Water-vascular system  Full syllabus test |

**Lesson plan of zoology department**

**Lesson plan -22-23**

**Subject - botanylll (305)**

**Class- Bsc zoo hons. sem 3th**

**Faculty name- Sangeeta,**

| **Time Period** | **Topics covered** |
| --- | --- |
| **August Week 4** | Plant anatomy , classification and structure of tissue, organization of shoot and root, structure of dicot and monocot leaf |
| **September** | Secondary growth in root and stem anatomical growth of root and stem. |
|  | Adaptive structure in hydrophyte and xerophyte |
|  | Plant reproduction structure of male and female gamatophyte microsporogenesis, megasporogenesis. |
|  | Pollination and fertilisation , endosperm and it's type, embryogenesis |
| **October** | Test and doubt class |
|  | Pollen pistal interaction and self incompatibility |
|  | Plant tissue culture, historical perspective and media composition, totipotency. |
|  | Physio chemical condition for propagation of plant cell and tissue embryogenesis and protoplast isolation. |
| **November** | Culture and fusion , cybrid , micropropagation. |
|  | Method and significance of haplod culture.plant genetic engineering |
|  | Brief concept of different gene transfer method |
|  | Role of plant biotechnology in crop improvement with special reference transgenic plant |
| **December** | Application of plant biotechnology in production of oil |
|  | Industrial enzyme and edible vaccine |
|  | Special emphasis based on agrobacterium gene mediated transfer. |
|  | Test and revision |